REMARKS

The Office Action of March 1, 2006 has been carefully studied.

By this amendment, claim 3 has been cancelled and rewritten as claim 33; rewritten claim 33 overcomes the rejection of claim 3 based on 35 U.S.C. 112, second paragraph. Claims 4 and 6 have been amended to obviate to the objections to them. Claim 9 has been amended to more positively distinguish Applicants' underfloor cable junction over the applied art. New claim 34 defines the unit of claim 9 in combination with the raised-floor system of claim 9, and requires the unit to be below the raised floor of the system on a structure on the base floor. Claims 11 and 12 have been amended to obviate the rejection under 35 U.S.C. 112. Claim 14, indicated as being allowable, has been amended to include the subject matter of claim 9, as submitted prior to the present amendment. Allowable claim 15 has been amended to include the subject matter of claim 9, as submitted prior the present amendment. Claim 16 has been amended to indicate that the underfloor cable junction unit has structure and dimensions for enabling it to be installed below the raised floor of a raised floor system unit including rows of data connectors. New claim 35 has been added, and includes limitations similar to those of claim 34, but claim 35 depends on claim 16, rather than claim 9. Claims 20 and 21, both of which were indicated as allowable, have been amended to include the subject matter of previously submitted claim 16, upon which they previously were dependent. Claim 28 has been amended so it depends on claim 27, and indicates the side bars carry the slide-in connector units of claim 27.

The indication of claims 6-8, 22-24, 26 and 29-32 being allowable is noted, as is the indication of claims 4, 14, 15, 20 and 21 containing allowable subject matter. Since claims 14, 15, 20 and 21 are now independent claims, Applicants presume they are also now allowed.

Applicants traverse the rejection of claim 1 as being anticipated by Domigan, U.S. Patent 4,536,612. A proper anticipation rejection requires a single reference to disclose every claimed feature. Domigan does not disclose the requirements of claim 1, upon which claims 2 and 3 depend, for the lateral sides or at least a major part of the lateral sides, of an underfloor cable junction unit to form part of a cooling air supply duct while the junction cable unit is installed in the duct. Claim 1 also requires the underfloor cable junction unit to be adapted to be located in the space beneath a raised floor arranged as a cooling air supply duct for devices adapted to be arranged on the raised floor that is also required to have floor panels with cooling air outlets. The underfloor cable junction unit is required to include a topside that is open, or a major part of a topside that is open, to enable passage of cooling air through the topside toward a floor panel of the raised floor, wherein the panel includes cooling air outlets.

There is no disclosure in Domigan of a raised floor having floor panels with cooling air outlets. Consequently, the openings referred to in the Office Action do not satisfy the requirement for lateral sides for enabling cooling air to flow through the lateral sides, and thereby form part of a cooling air supply duct. Consideration of the Domigan reference indicates that openings 35, 36, 40 and 41 are knock-outs, i.e., structures that are in the wall of the Domigan structure, and are removed only if necessary; see column 2, lines 24-35. Passages 35 and 36 are arranged so that telephone and/or data cables can pass through them. The data and/or telephone cables that fit through passages 35 and 36 are such that these passages cannot be considered as enabling cooling air to flow through them, and thereby form part of a cooling air supply duct for supplying cooling air for devices adapted to be arranged on raised floor 42. Because Domigan has no disclosure of cooling air flowing through passages 35, 36 or knockouts 40 and 41, Domigan does not have a disclosure of

cooling air flow through the opening 13. Cables pass through opening 13, and through hole 50 in floor 42 to the devices mounted on the floor. There is nothing in Domigan to indicate that the devices mounted on floor 42 include floor panels with cooling air that flows toward a floor panel of a raised floor. Applicants also note that knockouts 40 and 41 enter into the portion of main housing 2 that is closed from openings 13 and 50 by brackets 15 and 17 that appear to be solid, except for structures that are filled by receptacles 21 and 22 that appear to be female receptacles for male power plugs.

If the Examiner is relying on inherency with regard to the foregoing requirements for the lateral sides, or at least a major part of them being open for enabling cooling air to flow through the lateral sides, and thereby form part of the cooling air supply duct, the Examiner has not even attempted to satisfy the requirements for inherency. The fact that a certain result or characteristic ***may*** occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993); *In re Oelrich*, 666 F.2d 578, 581-82, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981). To establish inherency, extrinsic evidence must make clear that the missing descriptive matter is ***necessarily*** present in the thing described in the reference and that it would be so recognized by persons of ordinary skill in the art. Inherency may not be established by possibilities or probabilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *In re Roberston*, 169 F.3d 743, 745, 49 U.S.P.Q.2d 1949, 1950-51 (Fed. Cir. 1999). In relying upon a theory of inherency, the Examiner must provide a basis in fact or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the prior art. *Ex parte Levy*, 17

U.S.P.Q.2d 1461, 1464 (B.P.A.I. 1990). Since no evidence or rationale is presented, the Examiner has not met the burden of showing claim 1 is anticipated by Domigan.

Domigan also does not anticipate claim 2, which requires a mounting structure to be mounted on a base floor on which the raised floor is posted. The Office Action alleges the base floor is 42, Figure 2. However, it is evident that floor panel 42 is the false floor, and is not the base floor. Column 2, lines 64-68 indicates opening 50 in floor panel 42 provides clearance for bringing out the communication cable from passageways 35 to a floor fitting. The floor fitting is obviously on floor 42, for access by cables connected to the machines on floor 42.

New claim 33, that replaces claim 3, is not anticipated by Domigan because it requires the underfloor cable junction unit to be adjustable in width and height to enable lowering of the unit through any standard size module opening which is present when a module panel of a discrete modular raised floor system is removed. The basis in the specification for the standard size module requirement is at page 13, line 25, which indicates the floor panels are typically in the form of squares having dimensions of 60 cm x 60 cm, a standard module size in Europe, as well known to those of ordinary skill in the art.

Claim 25 distinguishes over Domigan by requiring a computer center having a raised floor on which computers are arranged. The raised floor is arranged as a cooling air supply duct for computers, and has floor panels with cooling air outlets. There is no disclosure in Domigan of a raised floor that is arranged as a cooling air supply duct, or floor panels with cooling air outlets. In addition, opening 13 in Domigan has cables extending through it, or is closed; see column 2, lines 42-44 and 65-68. Consequently,

opening 13 is not open to enable the passage of cooling air through it toward a floor panel with cooling air outlets. The Examiner has not met the burden of showing that the Domigan structure inherently includes such cooling air supply ducts, and that the Domigan boxes have openings to enable the passage of cooling air through the topside to a floor panel with cooling air outlets.

Independent claims 9 and 16, as amended, distinguish over MacDonald, U.S. Patent 6,170,784 (previously relied on to reject claims 9, 10, 13 and 16-19 under 35 U.S.C. 102(b)), by requiring the underfloor cable junction unit to have a structure and dimensions for enabling it to be installed below a raised floor of a raised floor system. The MacDonald device relates to slide-in data connector units for use within a communication rack, which obviously is located above a raised floor. There is no indication that the MacDonald device has a structure and dimensions for enabling it to be installed below a floor of a raised floor system. Since the MacDonald unit is designed to increase the usable space for electronic devices within a rack, it would appear that such dimensions are contrary to the MacDonald purpose.

New claims 34 and 35 clearly distinguish over MacDonald by requiring the underfloor cable junction units of claims 9 and 16 to be in combination with a raised floor system, wherein the unit is below the raised floor of the raised floor system and on a base floor.

Applicants traverse the rejection of claim 27 as being anticipated by Mead, U.S. Patent 5,548,932. Claim 27 requires slide-in connector units able to be slid from outside into a junction unit at at least one of its faces. The Office Action alleges cable trays 42 of Mead meet the requirements of claim 27 for slide-in connector units. However, there is no

disclosure in Mead of cable trays 42 including connectors, no less slide-in connector units. The Examiner has the burden of proving that the cable trays 42 of Mead satisfy the requirement for connector units. It is evident from the description of cable trays from the website http://www.cabletrays.com/cable101.htm (copy enclosed as Exhibit 1), that cable trays cannot be considered as slide-in connector units. There is no mention of connectors being included in cable trays in this discussion of cable trays from the Cable Tray Institute.

Claim 28 now depends on claim 27 and is allowable with claim 27. In addition, claim 28 requires the side-bars to carry the slide-in connector units. Since Mead does not include slide-in connector units, claim 28 is allowable over the Mead reference.

In view of the foregoing amendments and remarks, allowance of all claims is in order.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 08-2025, and please credit any excess fees to such deposit account.

Respectfully submitted,
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Cable Tray Institute

What is Cable Tray?

1. What is a Cable Tray System?
2. What standards / guidelines are available for cable tray systems?
3. What types of Cable Tray are available?
4. How do I know what type of cable tray is right for my application?
5. What materials / finishes are available for the various cable tray systems?
6. Now that I know what types of cable trays are available, what configurations are available?
7. After selecting the type of cable tray and configuration required, what support methods are available?
8. Before selecting the type of cable tray, cable tray configuration(s), and support method desired, what additional information do I need to supply to the cable tray manufacturer for them to best understand and satisfy my needs?

What is a Cable Tray System?

Per the National Electrical Code, a cable tray system is "a unit or assembly of units or sections and associated fittings forming a rigid structural system used to securely fasten or support cables and raceways."

What does this mean?

- Cable trays support cable the way that roadway bridges support traffic.
- A bridge is a structure that provides safe passage for traffic across open spans.
- Cable tray is the bridge that allows for safe transport of wires across open spans.
- Therefore, think of cable tray as the structural component of a building's electrical system.

What standards / guidelines are available for cable tray systems?

1. The **National Electrical Code** publishes the standards for all types of electrical applications. Articles 318, 250, and 800 cover various aspects of cable tray systems.
2. **NEMA**, (National Electrical Manufacturers Association), is an association comprised of the major cable tray manufacturers in the industry. This committee has published three documents to date: NEMA VE1, FG1 and VE2.

   NEMA VE1 covers general cable tray definitions, manufacturing standards, performance standards, test standards, and application information. Free download of this document is available on the NEMA website.

   NEMA FG1 addresses the standards for fiberglass cable tray systems. Free download

Exhibit 1

of this document is available on the NEMA website.

NEMA VE2 is a cable tray installation guideline which covers receiving and unloading material, storage of material, and general installation practices. Free download of this document is available on the NEMA website.

3. **CTI**, (Cable Tray Institute), is a trade association comprised of the major cable tray manufacturers in the industry and was formed to provide specifiers, designers, and installers information on the advantages of using cable tray systems over other types of products. (i.e. conduit, ladder rack, etc.)

A What types of Cable Tray are available?

1. Ladder
2. Solid Bottom
3. Trough
4. Channel
5. Wire Mesh
6. Single Rail

A How do I know what type of cable tray is right for my application?

1. **Ladder Cable Tray provides:**
   a. Solid side rail protection and system strength with smooth radius fittings and a wide selection of materials and finishes.
   b. maximum strength for long span applications
   standard widths of 6,12,18, 24, 30, and 36 inches
   c. standard depths of 3, 4, 5, and 6 inches
   d. standard lengths of 10, 12, 20 and 24 feet
   e. rung spacing of 6, 9, 12, and 18 inches

   Ladder cable tray is generally used in applications with intermediate to long support spans, 12 feet to 30 feet.

2. **Solid Bottom Cable Tray provides:**
   a. Nonventilated continuous support for delicate cables with added cable protection available in metallic and fiberglass.
   b. Solid bottom metallic with solid metal covers for nonplenum rated cable in environmental air areas
   c. standard widths of 6, 12, 18, 24, 30, and 36 inches
   d. standard depths of 3, 4, 5, and 6 inches
   e. standard lengths of 10, 12, 20 and 24 feet

   Solid Bottom cable tray is generally used for minimal heat generating electrical or telecommunication applications with short to intermediate support spans of 5 feet to 12 feet.

3. **Trough Cable Tray provides:**
   a. Moderate ventilation with added cable support frequency and with the bottom configuration providing cable support every 4 inches. Available in metal and nonmetallic materials.
   b. standard widths of 6, 12, 18, 24, 30, 36 inches

c. standard depths of 3, 4, 5, and 6 inches
d. standard lengths of 10, 12, 20 and 24 feet
e. fixed rung spacing of 4 inch on center

Trough cable tray is generally used for moderate heat generating applications with short to intermediate support spans of 5 feet to 12 feet.

4. **Channel Cable Tray provides:**
   a. an economical support for cable drops and branch cable runs from the backbone cable tray system.
   b. standard widths of 3, 4, and 6 inches in metal systems and up to 8 inches in nonmetallic systems.
   c. standard depths of 1¼-1¾ inches in metal systems and 1, 1 1/8, 1 5/" and 2 3/16 inches in nonmetallic systems
   d. standard length of 10, 12, 20 and 24 feet

   Channel cable tray is used for installations with limited numbers of tray cable when conduit is undesirable. Support frequency with short to medium support spans of 5 to 10 feet.

5. **Wire Mesh Cable Tray provides:**
   a. A job site, field adaptable support system primarily for low voltage, telecommunication and fiber optic cables. These systems are typically steel wire mesh, zinc plated.
   b. standard widths of 2, 4, 6, 8, 12, 16, 18, 20, and 24 inches
   c. standard depths of 1, 2, and 4 inches
   d. standard length of about 10 feet (118")

   Wire Mesh tray is generally used for telecommunication and fiber optic applications and are installed on short support spans, 4 to 8 feet.

6. **Single Rail Cable Tray provides:**
   a. These aluminum systems are the fastest systems to install and provide the maximum freedom fort cable to enter and exit the system.
   b. Single hung or wall mounted systems in single or multiple tiers.
   c. Standard widths are 6, 9, 12, 18, and 24 inches.
   d. Standard depths are 3, 4, and 6 inches.
   e. Standard lengths are 10 and 12 feet.

   Single Rail Cable Tray is generally used for low voltage and power cables installations where maximum cable freedom, side fill, and speed to install are factors.

▲ What materials / finishes are available for the various cable tray systems?

1. **Steel** (Min. Yield = 33KSI) (35 KSI for Stainless)
   a. **Plain:** hot rolled pickled and oiled steel per ASTM A569 (Commercial Quality) or A570 (Structural Quality)
   b. **Pre-Galvanized:** mill galvanized steel per ASTM A653 CS (Commercial) or SS (Structural) G90
   c. **Hot Dip Galvanized After Fabrication:** plain steel which is hot dipped after fabrication per ASTM A123.
   d. **Stainless Steel:** type 304 or 316L fully annealed stainless steel

2. **Aluminum** (Min.Yield = 23 KSI)

a. 6063-T6 or 5052-H32 alloy per ASTM B209

3. **Fiber Reinforced Plastic** (FRP)
   a. Polyester and Vinyl Ester resin systems available
   b. meet ASTM E-84 smoke density rating; Polyester 680, Vinyl Ester 1025
   c. Class 1 Flame Rating and self-extinguishing requirements of ASTM D-635.

▲ Now that I know what types of cable trays are available, what configurations are available?

1. Straight sections are available to route cables in a horizontal or vertical plane.
2. Fittings are available to route cables in various directions in either the horizontal or vertical planes. Typical examples of fittings include elbows, tees, crosses, and risers. Each of these fittings are available in various radii and bend angles.
3. Covers are accessories and shouldn't be in here unless splices etc. are included.

▲ After selecting the type of cable tray and configuration required, what support methods are available?

1. Trapeze Support (Single or Multi-tier)
2. Hanger rod clamps, "J" hangers
3. Center Hung Support
4. Wall Support
5. Underfloor Support
6. Pipe stanchions or other structures

Each of these support methods are preferable in different applications. For instance, trapeze supports may be desired in an application where cables will be pulled through the cable tray. Center hung supports, on the other hand, are generally used when cables will be installed from the side of the cable tray. Center hung supports are especially useful when future cable additions are desired. Wall supports and underfloor supports are useful when ceiling structure is not available or undesired. Outdoor installations are controlled by the structures available to support the cable tray.

▲ Before selecting the type of cable tray, cable tray configuration(s), and support method desired, what additional information do I need to supply to the cable tray manufacturer for them to best understand and satisfy my needs?

1. **Where? Job site and installation considerations**
   a. Outdoor
      1. supports available affect the length and strength requirements
      2. environmental loads, ice, wind, snow, and possibly seismic
      3. corrosion requirements affect the materials and finishes
      4. classified hazardous locations affect the cable types acceptable
   b. Indoor
      1. support locations available affect the length and strength of the system
      2. industrial installation may require a 200 lb. Concentrated Load
      3. commercial or institutional installation may make system appearance,

system weight, and space available important factors
4. environmental air handling area may affect cable types, cable tray material, or cable tray type and need for covers
5. classified hazardous locations affect the cable types acceptable

2. **What?**
   a. Type and number of cables to support
      1. NEC cable fill requirements dictate size, width and depth, of system
      2. cable support requirement may control bottom type
      3. largest bending radius of cable controls fitting radius
      4. total of cable weight determines load to support
   b. Future requirements
      1. cable entry / exit freedom
      2. design partially full or an expandable system
      3. support type to allow for needs

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